

List of the Butterflies from Ishigaki Island, the
Southern Loochoos, collected by Dr. R. KANO,
with the Description of a New Subspecies

By KEIICHI OMOTO¹⁾

PAPILIONIDAE

13. *Byasa alcinous bradana* (FRUHSTORFER, 1908) (figs. 19 & 20, ♂; 21, ♀)

Papilio alcinous bradanus FRUHST., Ent. Z. Stutt. 22: 46, 1908.

2♂♂, June 22, 1954, Kareyama; 1♀, June 25, 1954, Ohama; 4♂♂ 3♀♀, July 4, 1954, Banna; 1♂, July 19, 1954, Ishigaki city; 4♂♂ 9♀♀, Sept. 5, 1954, Banna; 1♂, Sept. 5, 1954, Inoda; 1♂, Sept. 12, 1954, Banna; 1♂ 1♀, Oct. 3, 1954, Banna; 1♂, May 24, 1955, Ohama (ANIYA leg.); 3♂♂, July 2, 1955, Banna; 1♂, July 3, 1955, Kareyama; 1♂, July 18, 1955, Urauchi, Iriomote Is.; 1♂, July 31, 1955, Nosoko; 1♂, Aug. 7, 1955, Banna (ANIYA leg.); 1♂, March 21, 1956, Hirae (ANIYA leg.); 1♂, March 25, 1956, Banna (ANIYA leg.); 1♂, Nosoko (ANIYA leg.); 1♀, June 1, 1958, Kedahana (ANIYA leg.).

1♂, June 9, 1954, Miyako Is.

The single male from Miyako Is. is smaller (LF: 47 mm.), and differs from specimens from Yaeyama in having ochreous submarginal spots on the underside of the hindwing, instead of red. The butterfly is common in Ishigaki, especially in valleys. LF: ♂ 43-56 mm., ♀ 50-56 mm.

14. *Graphium sarpedon morium* (FRUHSTORFER, 1908) (fig. 32, ♂)

Papilio sarpedon morius FRUHST., Ent. Z. Stutt. 22: 46, 1908.

1♂, June 24, 1954, Hirae; 1♂ 1♀, June 27, 1954, Ishigaki city; 2♂♂, July 4, 1954, Banna; 1♂, Aug. 10, 1954, Ishigaki city (ANIYA leg.); 1♀, Sept. 5, 1954, Banna; 1♂, Sept. 12, 1954, Kareyama; 1♂ 1♀, Oct. 16, 1954, Ishigaki city; 1♂, Nov. 7, 1954, Ohama (ANIYA leg.); 1♂, May 1, 1955, Hoshino (ANIYA leg.); 1♀, May 23, 1955, Nosoko (ANIYA, leg.); 1♀, May 24, 1955, Ohama (ANIYA leg.); 1♂, June 24, 1955, Hoshino (ANIYA leg.).

Very common everywhere in the Island. LF: ♂ 44-47 mm. ♀ 46-48 mm.

15. *Graphium doson perillum* (FRUHSTORFER, 1908) (figs. 33 & 34, ♂)

Papilio jason perillus FRUHST., Ent. Wbl., p. 38, 1908.

2♂♂ 1♀, Sept. 12, 1954, Kareyama; 1♂ 1♀, July 3, 1955, Kareyama; 1♂, Aug. 7, 1955, Mt. Omoto.

This subspecies resembles subsp. *postianum* FRUHST. of Formosa, but it is distinguished from the latter by its larger size. The spots on the upperside are bluish green in the male, yellowish in the female. The butterfly is not common in the Island, occurring locally in hills. LF: ♂ 47-48 mm., ♀ 48-49 mm.

16. *Papilio xuthus xuthus* LINNÉ, 1767

Papilio xuthus L., Syst. Nat. ed. xii: 751, 1767.

f. *xuthulus* BREMER (Dry-season form)

1♂ 4♀♀, March 6, 17, 1955, Ohama (ANIYA leg.)

f. *xuthus* L. (Wet-season form)

2♂♂ 1♀, June 13, 27, 1954, Ishigaki city; 1♂ 1♀, Sept. 26, 1954, Ohama; 1♀, Oct. 3, 1954,

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Kainan; 1♂ 1♀, Nov. 7, 1954, Ohama (ANIYA leg.); 1♂, March 21, 1956, Hirae (ANIYA leg.); 1♀, March 25, 1956, Banna (ANIYA leg.); 1♂, April 8, 1956, Taketomi Is. (ANIYA leg.); 3♂ 3♀, Oct. 14, 1956, Tonoshiro (ANIYA leg.).

Both seasonal forms are hardly distinguishable, as specimens of the dry-season are not smaller than those of the wet-season, unlike the case in Japan. Not rare throughout the Island. LF: ♂ 44-52 mm, ♀ 45-55 mm.

17. *Papilio polytes polytes* LINNÉ, 1758 (figs. 24, 29 & 30, ♂; 25 & 31, ♀)

Papilio polytes L., Syst. Nat., ed. x: 460, 1758.

Dry-season form: f. *borealis* FELDER

1♂, Feb. 28, 1955, Ishigaki city (ANIYA leg.); 1♂, March 6, 1955, Ohama (ANIYA leg.); 1♂, March 15, 1955, Tonoshiro (ANIYA leg.) 2♂ 3♀, March 21, 1956, Hirae (ANIYA leg.).

Wet-season form: f. *polytes* LINNÉ

2♂ 3♀, June 6, 1954, Futem-ma, Okinawa Is. (KANO leg.); 14♂ 8♀ 4♀ ♀, June 22-Oct. 18, 1954, Ishigaki city etc.; 1♀, July 28, 1954, Hateruma Is. (KANO leg.); 1♂, May 1, 1955, Hoshino (ANIYA leg.); 1♀, June 24, 1955, Hoshino; 1♂, July 2, 1955, Banna; 1♂ 1♀, April 8, 1956, Taketomi Is. (ANIYA leg.); 1♀, 1956, Nosoko (ANIYA leg.); 1♂ 1♀, Oct. 21, 1956, Tonoshiro (ANIYA leg.).

The commonest Papilionid in Loochoos; especially abundant near the villages and towns, visiting various flowers, for instance, *Hibiscus rosa-chinensis* L. The dry or cold-season form, on the wing till the end of March, differs remarkably from the hot or wet-season form in its much smaller size (LF: 38 mm, while in the latter 48-52 mm); in the much more prominent marginal series of yellowish spots on the forewing; and in that the hindwing below has orange submarginal spots. The female form having white discal spots and submarginal series of red spots on the hindwing, f. *polytes* L., seems to be rare in Ishigaki, while it is common in Hateruma Is.

18. *Papilio protenor liukiensis* FRUHSTORFER, 1898 (fig. 22, ♂; 23, ♀)

Papilio demetrius liukiensis FRUHST., Stett. entomol. Z.: 407, 1898

1♂, June 29, 1954, Kainan; 2♀ ♀, July 4, 1954, Banna; 2♂ 3♀ 1♀, Sept. 5, 1954, Banna; 4♂ 3♀ 1♀, Sept. 12, 19, 1954, Kareyama; 1♂, Oct. 3, 1954, Kainan; 1♂ 1♀, May 24, 1955, Ohama; 1♂, June 24, 1955, Hoshino; 1♂ 1♀, June 29, 1955, Kainan; 1♂, July 17, 1955, Uebaru, Iriomote Is.

The females have brownish groundcolor, and well-developed red submarginal spots on the hindwing above. The length of the tail is variable. Not rare in valleys of Ishigaki. LF: ♂ 55-59 mm. ♀ 67 mm.

19. *Papilio bianor junia* JORDAN, 1909 (figs. 26 & 28, ♂; 27, ♀)

Papilio bianor junia JORDAN, SEITZ, Macrolep., 9: 78, 1909.

1♂, July 4, 1955, Banna; 1♂, July 19, 1954, Ishigaki city; 1♂, Sept. 5, 1954, Banna; 3♂ 3♀, Sept. 6, 1954, Inoda; 9♂ 3♀ 2♀ ♀, Sept. 12, 19, 1954, Kareyama; 1♂, May 24, 1955, Nosoko (ANIYA leg.); 1♂, June 24, 1955, Hoshino; 5♂ 3♀, July 3, 1955, Kareyama; 1♂, July 31, 1955, Nosoko.

This subspecies is closely related to the Formosan race, subsp. *takasago* NAKAHARA et ESAKI, and distinctly separated from subsp. *okinawensis* FRUHST. of Okinawa, which resembles the Japanese race, subsp. *dehaanii* FELDER et FELDER. Common in valleys of Ishigaki. LF: ♂ 53-65 mm, ♀ 61-64 mm.

20. *Papilio memnon pryeri* ROTHSCILD, 1895

Papilio memnon pryeri ROTHSC., Nov. Zool. 2: 313, 1895.

1♂, Oct. 22, 1954, Nago, Okinawa Is. (Okinawa Group).

According to Dr. KANO, not a single specimen of this remarkable *Papilio*-species could be found in Yaeyama during his stay, although it is common in Okinawa. Quite similar is the case of the other widely distributed species, *Papilio helenus* LINNÉ. SONAN wrote in his list in 1924, that both species were not rare in Ishigaki. Furthermore, he recorded the occurrence of the tailed female form of *mennon*, f. *distantianus* ROTHS., which was also said to be not rare in the Island. If so, these Papilionids must have become extinct in the Island for some unknown reason, judging from records and informations on the fauna of Ishigaki.

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21. *Appias melania minato* (FRUHSTORFER, 1898) (fig. 46, ♂; 47, ♀)

Catophsaga paulina minato FRUHST., Stett. entomol. Z.: 409, 1898.

3♂♂, Sept. 12, 1954, Kareyama; 1♂, Sept. 30, 1954, Kabira; 1♀, Oct. 3, 1954, Kainan; 3♂♂ 1♀, Oct. 16, 1954, Ishigaki city (ANIYA leg.); 1♂, May 1, 1955, Hoshino (ANIYA leg.); 1♀, July 3, 1955, Kareyama.

Specimens in the cold-season lack the black apical marking on the forewing upperside. The butterfly is not common, flying very swiftly above high trees on valleys. LF: ♂ 32-34 mm, ♀ 32 mm.

22. *Catopsilia pyranthe* (LINNÉ, 1758) (fig. 45, ♀)

Papilio pyranthe L., Syst. Nat., ed. x: 496, 1758.

f. *florella* FABRICIUS (Dry-season form)

4♂♂ 3♀♀, Oct. 16, Nov. 3, 1954, Ohama (ANIYA leg.); 1♂ 1♀, March 6, 1955, Tonoshiro (ANIYA leg.); 1♂, March 17, 1955, Ohama (ANIYA leg.); 1♂, May 1, 1955, Hoshino (ANIYA leg.); 1♂, April 15, 1956, Ishigaki city (ANIYA leg.); 1♂ 1♀, Oct. 14, 21, 1956, Tonoshiro (ANIYA leg.); 1♀, 1956, Hateruma Is. (ANIYA leg.).

f. *pyranthe* LINNÉ (Wet-season form)

29♂♂ 22♀♀, June 13-Oct. 18, 1954, Various parts of Ishigaki; 1♂, Nov. 3, 1954, Ohama (ANIYA leg.); 2♀♀, May 1, 1955, Hoshino (ANIYA leg.); 1♀, April 8, 1956, Taketomi Is. (ANIYA leg.); 2♂♂, Oct. 14, 1956, Tonoshiro (ANIYA leg.); 1♂, June 1, 1958, Kedabana, (ANIYA leg.).

The dry-season form, f. *florella*, differs from the wet-season form, f. *pyranthe*, more distinctly in the female than in the male. Both forms occur at the same time in spring and autumn. *C. pyranthe* is one of the commonest butterflies in lowlands of Ishigaki. LF: ♂ 29-35 mm, ♀ 33-38 mm.

23. *Catopsilia crocale* (CRAMER, 1775) (fig. 41, ♂; 42, ♀)

Papilio crocale CRAMER, Pap. Exot. 1: 87, 1775.

1♂, Oct. 2, 1954, Ishigaki city; 2♂♂ 1♀, July 3, 1955, Kareyama; 1♀, July 17, 1955, Uebaru, Iriomote Is.

This may be the first record of the species from Yaeyama Islands. The question whether or not the other closely related pair of *Catopsilia*, *pomona* and *crocale*, are conspecific, as in the preceding two forms of *pyranthe*, remains still unsolved. Here the matter seems to be more complicated than in the case of *pyranthe*-*florella* relationship, for both *pomona* and *crocale* occur throughout the year in the same area. In Yaeyama, however, the identification of these two forms is not a different problem: *pomona* has a conspicuous silver spot crowned with red on the hindwing underside, while *crocale* has not. The female of *pomona* has the ground-color which is entirely yellow, while in *crocale* it is white or partly yellowish. All the specimens in KANO's collection belong to *crocale*, but the writer has rece-

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ived the following specimens of *pomona* from Mr. S. HIGASHIHIRACHI. LF: ♂ 27-33 mm, ♀ 32-38 mm.

24. *Catopsilia pomona* (FABRICIUS, 1775) (figs. 43 & 44, ♀)

Papilio pomona FABRICIUS, Syst. Ent.: 479, (New Holland), 1775.

3♂♂, April 17, 1956, Takeda (HIGASHIHIRACHI leg.); 1♀, Aug. 10, Inoda (HIGASHIHIRACHI leg.).

This may be the first record of this species in Yaeyama. LF: 35 mm.

25. *Hebomoia glaucippe cincia* (FRUHSTORFER, 1910) (fig. 48, ♂; 49, ♀)

Hebomoia glaucippe cincia FRUHST., SEITZ, Macrolep. 9: 175, 1910.

f. *shirakii* KUROSAWA et OMOTO (Dry-season form)

1♂, May 1, 1955, Hoshino (ANIYA leg.).

f. *cincia* FRUHSTORFER (Wet-season form)

2♂♂ 1♀, June 24, 1955, Hoshino; 1♀, June 29, 1955, Kainan; 3♂♂ 1♀, July 3, 1955, Kareyama.

Not rare in valleys of Ishigaki, flying very fast and strong above high trees and visiting various flowers. The dry-season form is smaller (LF: 52 mm.), having slenderer forewings with the apex more produced, and the subapical black band broader, than that of the wet-season. LF: 54-57 mm.

26. *Eurema hecabe hobsoni* (BUTLER, 1880) (fig. 35, ♂; 36, ♀)

Terias hecabe hobsoni BULTER, Proc. Zool. Soc. London: 668, 1880.

1♀, June 6, 1954, Futemma, Okinawa Is. (Okinawa Group); 8♂♂ 4♀♀, July 4-Oct. 3, 1954, Various parts of Ishigaki Is.; 2♀♀, Nov. 7, 1954, Ohama (ANIYA leg.); 3♂♂ 2♀♀, March 6-17, 1955, Ohama, Ishigaki city (ANIYA leg.); 3♂♂ 2♀♀, May 1, 24, 1955, Hoshino (ANIYA leg.); 4♂♂ 3♀♀, June 28, 1955, Kabira; 1♂, July 2, 1955, Banna; 2♂♂ 3♀♀, Aug. 7, 1955-March 25, 1956, Banna etc. (ANIYA leg.); 1♂ 1♀, April 8, 1956, Taketomi Is. (ANIYA leg.); 1♂, 1956, Hateruma Is. (ANIYA leg.); 4♂♂, 1956, Nosoko (ANIYA leg.); 5♂♂ 4♀♀, Oct. 14, 1956, Tonoshiro (ANIYA leg.).

This is the commonest and most variable species among the genus *Eurema* in the Indo-Australian region. It is also very abundant throughout the year in lowlands of Yaeyama. LF: 19-25 mm.

27. *Eurema blanda arsakia* (FRUHSTORFER, 1910) (fig. 37, ♂; 38 & 39, ♀)

Terias blanda arsakia FRUHST., SEITZ, Macrolep. 9: 169, 1910.

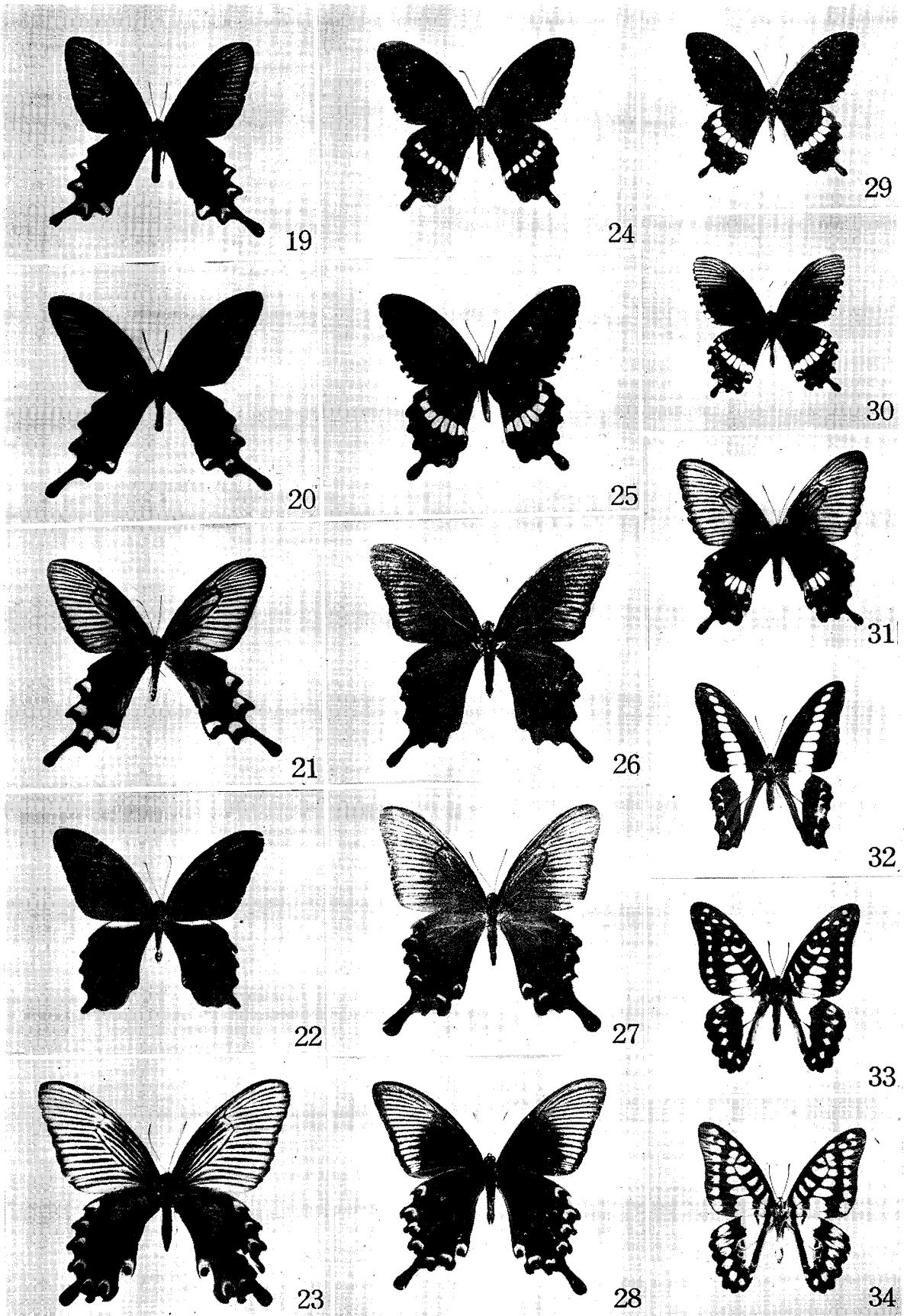
1♀, July 4, 1954, Banna; 1♀, Sept. 6, 1954, Inoda; 17♂♂ 9♀♀, Sept. 12, 19, 1954, Kareyama; 14♂♂ 11♀♀, Oct. 3, 1954, Kainan; 1♂ 1♀, July 3, 1955, Kareyama; 3♂♂, 1956, Nosoko (ANIYA leg.).

E. blanda is far less variable than the preceding species, *E. hecabe*. As to the specimens of Ishigaki Is., the butterfly is easily separable from *E. hecabe hobsoni* by the following points in the wet-season form. Groundcolor paler in both sexes. The male has on the upperside of the forewing the narrower black marginal band, a part of which protrudes inwardly along the vein 4. The female has extremely wide black marginal band on both wings above. Especially, the broad marginal band of the hindwing of the female is characteristic of this species. It is said in India and Malaya, that the three cell-spots on the underside of the forewing constitute a constant characteristic of the species, which, however, does not seem to be applicable to the specimens from Ishigaki. So far as the writer has examined, the specimens from the Island have only two faint cell-spots in the summer brood, while in the Formosan specimens they are normally three.

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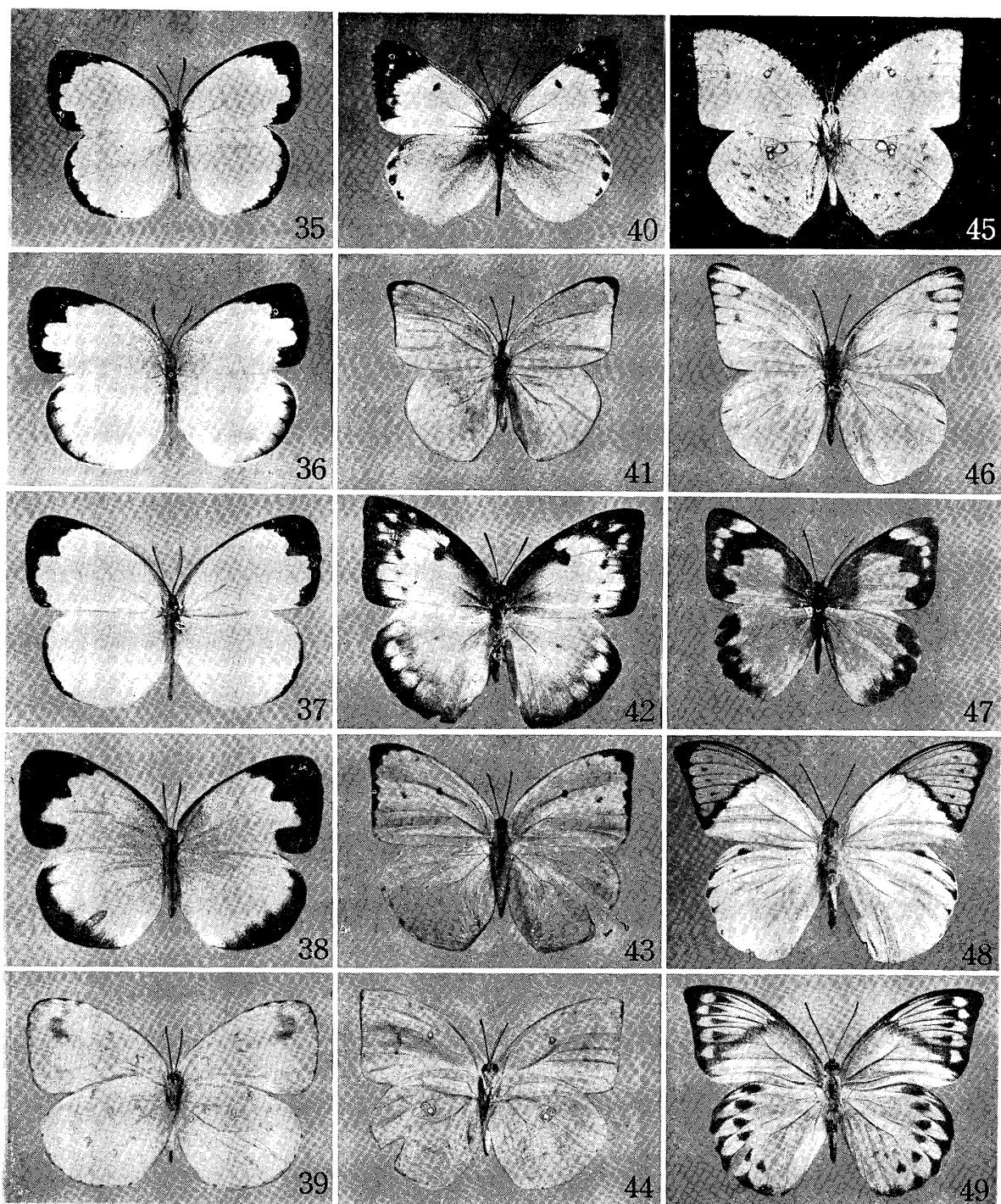
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The habits of *E. blanda* also differ from those of *E. hecate*. Unlike the latter, the species is confined to valleys, the males having considerably strong flight above trees, and sometimes found in crowds settled on river banks. It is reported in India, that the larvae are gregarious on the foodplant, *Wagatea spicate* DALZ., family Leguminosae. LF: ♂ 22-25 mm., ♀ 23-26 mm.

28. *Colias erate poliographus* MOTSCHULSKY, 1860 (fig. 40, ♂)

Colias hyale poliographus MOTSCHULSKY, Etud. d'Ent. 9: 29, 1860.

1♂, April 8, 1956, Taketomi Is. (ANIYA leg.).

This species seems to be uncommon in Yaeyama, especially rarer in the hot-season. The writer has also received from Mr. HIGASHIHIRACHI: 1 ♂, March 27, 1956, Shiraho; 1 ♀, (yellow form), April 8, Arakawa. LF: 25-26 mm.

Explanation of Photos

Fig. 19. *Byasa alcinous bradana* (FRUHSTORFER), (Winter-brood), ♂. Fig. 20. Ditto, (Summer-brood), ♂. Fig. 21. Ditto, (Summer-brood), ♀. Fig. 22. *Papilio protenor liukiuensis* (FRUHSTORFER), ♂. Fig. 23. Ditto, ♀. Fig. 24. *Papilio polytes polytes* LINNÉ, ♂. Fig. 25. Ditto, f. *stichius* HÜBNER, ♀. Fig. 26. *Papilio bianor junia* JORDAN, ♂. Fig. 27. Ditto, ♀. Fig. 28. Ditto, ♂, (underside). Fig. 29. *Papilio polytes polytes* LINNÉ, f. *borealis* FELDER, ♂. Fig. 30. Ditto, ♂, (underside). Fig. 31. Ditto, f. *polytes* LINNÉ, ♀. Fig. 32. *Graphium sarpedon morium* (FRUHSTORFER), ♂. Fig. 33. *Graphium doson perillum* (FRUHSTORFER), ♂. Fig. 34. Ditto, (underside).

Fig. 35. *Eurema hecabe hobsoni* (BUTLER), ♂. Fig. 36. Ditto, ♀. Fig. 37. *Eurema blanda arsakia* (FRUHSTORFER), ♂. Fig. 38. Ditto, ♀. Fig. 39. Ditto, (underside). Fig. 40. *Colias erate poliographus* MOTSCHULSKY, ♂. Fig. 41. *Catopsilia crocale* (CRAMER), ♂. Fig. 42. Ditto, ♀. Fig. 43. *Catopsilia pomona* (FABRICIUS), ♀. Fig. 44. Ditto, (underside). Fig. 45. *Catopsilia pyranthe* (LINNÉ), f. *florella* FABRICIUS, ♀, (underside). Fig. 46. *Appias melania minato* (FRUHSTORFER), ♂. Fig. 47. Ditto, ♀. Fig. 48. *Hebomoia glaucippe cincia* FRUHSTORFER, ♂. Fig. 49. Ditto, ♀.

対馬産キリシマミドリシジミについて

藤岡知夫¹⁾*Chrysozephyrus ataxus* DOUBLEDAY et HEWITSON from Tsushima Island

By TOMOO FUJIOKA

対馬にキリシマミドリシジミを産することは 1955年浦田明夫氏により発見されて以来知られているが、筆者は 1958年3月同地にて卵を採集、東京にて飼育し羽化せしめ、他の産地の成虫と比較する機会を得たので報告する次第である。

♂: 表面前後翅共に外縁の黒帯は細く、特に後翅後縁角に於ては、青色の線条迄緑色が拡がる。これは羽化した10♂すべてに共通した特徴で、一方筆者等東京の採集者及び森石雄氏の所蔵になる、御在所²⁾、国見山その他の地より得られた多数の♂を検したが対馬の程黒帯の細い個体は見出せなかった。

♀: 前翅表面の紫色斑は御在所²⁾その他本州、九州産のものに比べると一般に広く、美くしい。しかし屋久島産の♀の如く紫色が前翅基部迄達することはない。♀の紫色斑は飼育した場合変化が多いようで、飼育で得た対馬産10♀すべてが他産地のものから明瞭に区別されるというわけにはいかないが、白水、森両氏の所有せられる同地採集品の♀はすべて紫色斑が大きく拡がって居るので、これは同地産♀の特徴と考えて良いと思う。

以上の♂♀の特徴により、対馬産のキリシマミドリシジミを別種として *subsp. kirishimaensis* OKAJIMA 及び *subsp. yakushimaensis* YAZAKI より区別出来るものと思うが、検した個体はわずかの不完全な♀を除いてはすべて飼育品で、しかも10♂10♀という少數であるので、更に多くの個体、特に野外採集品を検してからにしたい。

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